

Subtribe 3. PHOLIOTANAE (key, continued*)

(Lamellae not readily separable from the context.)

Volva or annulus present.

Volva absent, annulus present, the latter not conspicuous when the veil is arachnoid.

Annulus continuous, conspicuous.

Stipe glabrous or fibrillose.

Stipe squarrose-scaly.

Annulus arachnoid, inconspicuous; universal veil arachnoid and distinct from the cuticle.

Volva present, annulus absent.

Volva and annulus both present.

74. PHOLIOTA.
75. HYPODENDRUM.
76. CORTINARIUS.
77. LOCELLINA.
78. ROZITES.

74. PHOLIOTA† (Fries) Quél. Champ. Jura Vosg. 91. 1872.

Agaricus § *Pholiota* Fries, Syst. Myc. 1: 240. 1821.*Pholiotina* Fayod, Ann. Sci. Nat. VII. 9: 359. 1889.*Pholidopsis* Earle, Bull. N. Y. Bot. Gard. 5: 443. 1909.

Plants fleshy, putrescent, solitary to cespitose, geophilous or xylophilous; pileus glabrous to distinctly scaly; lamellae adnexed to slightly decurrent; spores ferruginous to fuscous, smooth or rough; stipe central, fleshy, glabrous to fibrillose, or somewhat scaly (but not both pileus and stipe distinctly scaly unless the stipe is sheathed); veil present, forming a distinct though often evanescent annulus; typically with no brown sterile organs in the hymenium.

Type species, *Pholiota dura* (Bolt.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA

Plants growing on the ground or among moss.

Spores elongate-ovoid or elongate-elliptic, smooth, 10–14 μ long; cystidia abundant, projecting conspicuously, flask-shaped with a long neck; pileus and stipe not scaly or the latter only slightly so at the very base; young plants distinctly brown or blackish-brown in color.

Plants less than 1.5 cm. broad; known only from the Pacific coast.

Plants 2–5 cm. broad; lamellae 2–4 mm. broad.

Plants 4–10 cm. broad; lamellae 4–7 mm. broad.

Spores ovoid with a truncate apex, smooth, 8–10 μ or more long; rather large species, none less than 3 cm. broad when mature, not at all scaly, white to ochraceous or tan, often hygrophanous.

Spores 11–15 μ long.Spores 8–10 μ long.

Plants growing on the ground in open woods.

Plants growing on humus in rich woods.

Plants growing in cultivated fields or in grassy places, rarely in open grassy woods or among straw and other waste vegetable matter carried into the woods.

Spores 4.5–6 μ broad; pileus white or tinged with yellow or tan; lamellae narrow or medium-broad, sometimes somewhat sinuate.

Spores 6–7 μ broad; pileus ochraceous-yellow; lamellae very broad, obliquely truncate-sinuate.

Spores 5–7 μ long, smooth; plants with fibrillose-scaly pileus and stipe; pileus 1–4 cm. broad.

Spores rough-walled; plants medium-sized to large, 3–15 cm. broad; annulus not median.

Plants dark-colored, i.e. golden-brown to umber or smoky.

Plants bright-colored, i.e. ochraceous-buff to zinc-orange.

Spores variable, typically truncate at the apex; plants with slender stipes and small pilei, none more than 4 cm. broad; with a prominent-persisting usually median annulus striate on the upper side; plants without scales.

Plants growing among *Polytrichum* moss.Plants growing in wet places among *Sphagnum* moss.

Plants growing on the ground or among leaf-mold, but not among moss.

Plants yellowish-red or dark-ferruginous and retaining these colors in herbarium specimens; stipe 1–2.5 cm. long.

Plants watery-brown when fresh, ochraceous in herbarium specimens; stipe 8–10 cm. long.

Spores 6.5–9 μ long.Spores 9–10.5 μ long.

Stipe 2 mm. or more thick; medium-slender plants more than 1 cm. broad.

1. *P. subnigra*.
2. *P. aggericola*.
3. *P. ombrophila*.
4. *P. vermiflua*.
5. *P. Howeana*.
38. *P. acericola*.
6. *P. candicans*.
7. *P. temnophylla*.
20. *P. terrestris*.
16. *P. trachyspora*.
14. *P. McMurryi*.
12. *P. minima*.
13. *P. mycenoides*.
8. *P. rugosa*.
9. *P. blattaria*.
10. *P. logularis*.

* See N. Am. Flora 10: 145, for the beginning of the key to the subtribe Pholiotanae.

† By LEE ORAS OVERHOLTS.

- Stipe about 1 mm. thick; very slender plants less than 1 cm. broad.
- Spores variable; plants not having all the characters of any of the above sections.
- Plants growing among *Polytrichum* moss; pileus less than 1 cm. broad. Plants not as above.
- Stipe conspicuously white-tomentose below the annulus; pileus isabelline tinted with rose; cystidia rather abundant; spores 8–10 μ long; plants western.
- Plants not as above; spores usually smaller.
- Stipe scaly; pileus yellowish-red or ochraceous-orange to tawny; brown cystidia abundant in the hymenium.
- Stipe not scaly; pileus pallid to ochraceous or cinnamon-buff; no brown cystidia present.
- Plants less than 3 cm. broad; western.
- Plants more than 3 cm. broad; eastern.
- Spores constantly 6 μ or less long; annulus membranous, disappearing.
- Spores, considerable number in each mount measuring as much as 8 or 9 μ ; annulus a persistent cottony roll on the stipe.
- Spores uniformly 9–10.5 \times 6–7 μ .
- Plants growing on wood or about stumps or around rotten logs.
- Both pileus and stipe decidedly scaly; spores smooth; brown cystidia present or absent.
- With brown cystidia in the hymenium.
- With hyaline projecting cystidia in the hymenium.
- Without cystidia.
- Pileus 0.5–2.5 cm. broad; pileus and stipe densely covered with a sheath of small erect conic superficial scales.
- Pileus 1–3 cm. broad, covered with a dense coating of soft fibrillose scales that are erect, if at all, only in the center of the pileus; stipe sparingly scaly or only fibrillose, not sheathed.
- Pileus 6–15 cm. or more broad, with large floccose patches or scales.
- Either pileus or stipe (not both) scaly; spores smooth; brown cystidia absent.
- Pileus glabrous.
- Plants watery-brown or cinnamon, 1–3 cm. broad.
- Plants ochraceous-orange, 5 cm. or more broad.
- Pileus floccose or scaly.
- Plants bright ochraceous-orange throughout, 2–5 cm. broad.
- Plants cinnamon-rufous or tawny, 1–2.5 cm. broad.
- Plants pallid to fawn-colored, 6–15 cm. broad.
- Plants not entirely as in either of the above sections.
- Heavy fleshy species, 6 cm. or more broad and 2.5 cm. or more thick when mature, pallid or wood-colored and with fibrillose or floccose scales or patches; spores smooth, cystidia none.
- Plants not entirely as above.
- Spores rough and cystidia absent; pileus yellow to tawny, not hygrophanous.
- Pileus viscid; a small ochraceous or tan-colored plant scarcely more than 2–3 cm. broad.
- Plants not entirely as above.
- Pileus with distinct shades of green or ashy-green when young or on being handled; flesh green-tinged; lamellae bright-colored and remaining so in dried plants; pileus scaly with fibrillose scales.
- Plants not entirely as above.
- Pileus 2–5 cm. broad, typically pinkish-red in color, squamulose with innate scales; flesh usually pale-lavender; lamellae bright-colored in dried plants.
- Plants not entirely as above.
- Pileus 4–15 cm. broad at maturity, dry, glabrous or fibrillose or if squamulose then the scales definitely formed by the separation of a fibrillose cuticle; taste bitter or amygdaline.
- Pileus hygrophanous, glabrous, otherwise as in *P. spectabilis*.
- Spores smooth or rough, if rough, then flask-shaped; cystidia present.
- Stipe scaly; pileus glabrous.
- Stipe glabrous; pileus scaly or strongly floccose-fibrillose.
- Stipe fibrillose to glabrous; pileus glabrous.
- Plants uniformly less than 4 cm. broad.
- Lamellae conspicuously forked.
- Lamellae not at all forked.
- Spores with a truncate apex, 6–8 μ long; cystidia none; veil evanescent.
11. *P. filaris*.
12. *P. minima*.
15. *P. albivelata*.
29. *P. rigidipes*.
17. *P. anomala*.
18. *P. duroides*.
19. *P. Johnsoniana*.
7. *P. temnophylla*.
29. *P. rigidipes*.
28. *P. Schraderi*.
21. *P. erinaceëlla*.
22. *P. muricata*.
40. *P. destruens*.
31. *P. mutabilis*.
30. *P. oregonense*.
23. *P. curvipes*.
32. *P. confragosa*.
40. *P. destruens*.
40. *P. destruens*.
36. *P. discolor*.
24. *P. aeruginosa*.
25. *P. luteofolia*.
27. *P. spectabilis*.
26. *P. cerasina*.
31. *P. mutabilis*.
32. *P. confragosa*.
33. *P. furcata*.
34. *P. marginella*.

- Spores not truncate, 7.5–9.5 μ long; flask-shaped cystidia present and projecting, though often not abundant.
- Pileus hygrophanous; annulus evanescent. 35. *P. marginata*.
- Pileus viscid; annulus subpersistent. 36. *P. discolor*.
- Pileus dry or hygrophanous; annulus at first funnel-shaped, persistent and conspicuous. 37. *P. unicolor*.
- Plants at maturity more than 4 cm. broad.
- Spores rough-walled at maturity. 35. *P. marginata*.
- Spores entirely smooth-walled.
- Cystidia present, flask-shaped, strongly projecting; pileus often rugose; on rotten wood or on humus. 38. *P. acericola*.
- Cystidia present and rather abundant but projecting only slightly and more fusoid than flask-shaped; on recently felled logs or in wounds of living trees. 39. *P. Aegerita*.
- II. SPECIES OCCURRING IN TROPICAL NORTH AMERICA
- Spores rough-walled.
- Plants growing among moss on the ground. 41. *P. bryophila*.
- Plants growing on wood.
- Pileus 3–10 cm. broad. 42. *P. Brittoniae*.
- Pileus 0.5–2 cm. broad. 37. *P. unicolor*.
- Spores smooth.
- Spores 6–8 μ long.
- Plants growing on the ground. 43. *P. cubensis*.
- Plants growing on wood.
- Pileus squamulose, reddish-brown in color. 44. *P. martinicensis*.
- Pileus granular-tomentose, ochraceous in color. 45. *P. cinchonensis*.
- Spores 8.5–10 μ long. 46. *P. avellanea*.
- Spores 12–14 μ long. 47. *P. Broadwayi*.
- Spores 16–20 μ long. 48. *P. Musae*.

1. *Pholiota subnigra* Murrill, Mycologia 4: 258. 1912.

Pileus 1.3 cm. broad, convex, slightly umbonate, uniformly fuscous or dusky-drab except on the margin where a hoary pubescence remains from the veil, otherwise glabrous, slightly viscid; lamellae sinuate-adnate, ventricose, medium-close, becoming fulvous, the edges whitish, 2 mm. broad; veil forming a persistent, white, superior, membranous annulus; stipe central, equal, pallid, rough with short, soft, whitish, conic scales pointing upward, solid, 2 cm. long, 2.5 mm. thick; spores somewhat elongate-ellipsoid, smooth, 10–13 \times 5–6 μ ; cystidia abundant, projecting, conspicuous, flask-shaped.

TYPE LOCALITY: Seattle, Washington.

HABITAT: Attached to a small buried root.

DISTRIBUTION: Known only from the type locality.

2. *Pholiota aggericola* (Peck) Sacc. Syll. Fung. 5: 740. 1887.

Agaricus aggericola Peck, Ann. Rep. N. Y. State Mus. 24: 67. 1872.

Agaricus indecens Peck, Ann. Rep. N. Y. State Mus. 30: 40. 1878.

Pileus 1–5 cm. broad, convex becoming plane or slightly depressed, rarely slightly umbonate, at first brown or blackish-brown, drying out to ochraceous-tawny or buckthorn-brown, or slightly darker in herbarium plants, somewhat viscid when moist, glabrous, even or somewhat reticulate, slightly striatulate at times on the margin; lamellae adnate or slightly decurrent, medium-close or slightly distant, 2–4 mm. broad, pallid or grayish, becoming rusty-brown, ochraceous-tawny to cinnamon in dried plants; veil forming a thin persistent, white, membranous, superior annulus; stipe central, equal, brownish below, white above the annulus, solid, pruinose above the annulus, fibrillose or glabrous below, or at times slightly squamulose at the base, 2.5–7 cm. long, 3–8 mm. thick; spores elongate-elliptic or elongate-ovoid, smooth, 11–15 \times 5.5–7.5 μ ; cystidia present, usually abundant, hyaline, 5–6 μ broad, projecting 30–40 μ .

TYPE LOCALITY: Greig, New York.

HABITAT: On the ground by roadsides and in woods.

DISTRIBUTION: Massachusetts, Connecticut, New York, and New Jersey.

3. *Pholiota ombrophila* (Fries) Sacc. Syll. Fung. 5: 737. 1887.

Agaricus ombrophilus Fries, Hymen. Eur. 216. 1874.

Pholiota washingtonensis Murrill, Mycologia 4: 259. 1912.

Pileus 3–10 cm. broad, campanulate-convex to nearly plane, dull-brown, close to wood-brown or Verona-brown, russet or light-cinnamon in herbarium specimens, at first with a

few, white, floccose fibers or scales on the margin, soon glabrous, hygrophanous or subviscid when moist, even or faintly striate on the margin; context white or somewhat colored, with no odor and a mild taste; lamellae usually decurrent, medium-close or slightly distant, 4–6 mm. broad, clay-colored to rusty-brown, the edges white-crenulate in fresh plants; veil forming a median or superior membranous, broad, conspicuous, often striate, persistent annulus; stipe central, equal or enlarged below, whitish or brownish, often dark below, stuffed or hollow, 4–8 cm. long, 4–15 mm. thick; spores cylindric-elliptic or fusoid-elliptic, smooth, $11-15 \times 5-7 \mu$; cystidia abundant, conspicuous, projecting $20-40 \mu$, flask-shaped.

TYPE LOCALITY: Europe.

HABITAT: In grassy places in woods or wooded pastures.

DISTRIBUTION: New York and westward to Washington; also in Europe.

ILLUSTRATIONS: Fries, Ic. Hymen. *pl.* 103, *f.* 2; Trans. Wisc. Acad. 17: *pl.* 31.

4. *Pholiota vermiflua* (Peck) Sacc. Syll. Fung. 5: 739. 1887.

Agaricus vermifluus Peck, Ann. Rep. N. Y. State Mus. 31: 34. 1879.

Pileus 2–12 cm. broad, hemispheric to campanulate or plane, white, cream-colored or massicot-yellow, retaining these colors in drying, dry or moist or in wet weather almost viscid, glabrous or fibrillose on the margin from the veil, at maturity often becoming reticulate-areolate at the center; context rather thick, often with a slightly disagreeable taste, pure-white; lamellae slightly uncinuate to broadly adnate or sinuate, close, 3–10 mm. broad, white, then dark-brown, ochraceous-tawny to buckthorn-brown in dried plants; veil white, membranous, forming a superior, often evanescent annulus, or adhering to the margin of the pileus; stipe central, equal or more often enlarged at the apex and tapering to a somewhat bulbous base, white or light-brown, fibrillose or glabrous, sometimes striate and pruinose at the apex, solid or with a small hollow, 5–12 cm. long, 3–15 mm. thick; spores ovoid or elliptic, more or less truncate at the apex, smooth, $10-14 \times 6-8 \mu$; cystidia present, subglobose to pyriform with a tapering base, $35-45 \times 20 \mu$, not prominent, sometimes quite rare.

TYPE LOCALITY: Ticonderoga, New York.

HABITAT: On the ground in cultivated, grassy, or waste places; not in dense woods.

DISTRIBUTION: New York to North Carolina and westward to the Pacific coast.

ILLUSTRATIONS: Trans. Wisc. Acad. 17: *pl.* 28, *f.* C-F, 29; 18: *pl.* 11–13.

5. *Pholiota Howeana* Peck, Bull. N. Y. State Mus. 122: 147. 1908.

Agaricus Howeanus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 53. 1873.

Pileus 2.5–8 cm. broad, convex then plane, subumbonate, yellowish or yellowish-brown, sometimes lighter and slightly rugulose when mature, sometimes darker in the center, dry, even, glabrous, even on the margin; context fragile, fleshy, with a bitter taste; lamellae sinuate-adnate or with a decurrent tooth when young, often entirely separating and leaving a distinct trace on the stipe, whitish, becoming ferruginous-brown, rather close, eroded, the edges lighter-colored; veil forming a conspicuous, persistent, superior annulus; stipe central, equal or slightly thickened at the base, colored similar to the pileus, glabrous or white-tomentose at the base, hollow, 5–11 cm. long, 4–7 mm. thick, sometimes with white mycelial cords at the base; spores ovoid or ovoid-elliptic, truncate at the apex, smooth, dilute-brown, $8-10 \times 4.5-5.5 \mu$; cystidia present but quite rare, broadly flask-shaped, projecting, hyaline.

TYPE LOCALITY: Center, New York.

HABITAT: On the ground in open woods and bushy places, often among grass.

DISTRIBUTION: New York and perhaps Michigan.

6. *Pholiota candicans* (Schaeff.) Schroet. Krypt.- Fl. Schles. 3¹: 608. 1889.

Agaricus candicans Schaeff. Fung. Bavar. 4: Ind. 50. 1774.

Agaricus praecox Pers. Comm. Fung. Bavar. 89. 1800.

Pholiota praecox Qué. Champ. Jura Vosg. 91. 1872.

Pileus 2–14 cm. broad, convex to campanulate or nearly plane, sometimes umbonate, often fuscous or fuscous-black when very young, soon whitish, often tinged with yellow or tan, or brownish at the center, usually ochraceous or tan in herbarium specimens, soft, glabrous, or at times as though finely tomentose, dry, areolate in dry weather or in large specimens; context white, with a strongly farinaceous odor; lamellae sinuate-adnate to broadly adnate, or with a

very slight decurrent tooth, medium-close, whitish, becoming brown or rusty-brown, honey-yellow to clay-colored or snuff-brown in herbarium specimens, 3–12 mm. broad; veil membranous, forming a white, superior, persistent or evanescent annulus, or partially adhering to the margin of the pileus; stipe central, equal or somewhat bulbous below, whitish, pruinose-mealy to slightly fibrillose, squamose, furfuraceous, or becoming nearly glabrous, often striate above the annulus, stuffed or hollow, 3–15 cm. long, 3–20 mm. thick; spores ovoid, usually with a truncate apex, smooth, deep-brown, $8.5-10 \times 4.5-6 \mu$; cystidia present, flask-shaped or ventricose, sometimes rare, projecting somewhat, 14–18 μ in diameter.

TYPE LOCALITY: Europe.

HABITAT: On grassy ground, in lawns, fields, etc.; sometimes on the ground in open woods or in straw or other litter carried into woods.

DISTRIBUTION: Massachusetts to North Carolina, and westward to the Pacific coast; also in Europe.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 49: pl. 46; Atk. Stud. Am. Fungi pl. 42; ed. 2. pl. 46; Berk. Outl. Brit. Fungol. pl. 8, f. 1; Bres. Fung. Mang. pl. 49; Cooke, Brit. Fungi pl. 360 (381); Gill. Champ. Fr. pl. 292 (526); Hard, Mushr. f. 209; C. H. Kauffman, Agar. Mich. pl. 59; Mem. N. Y. State Mus. 3: pl. 57; Mycologia 3: pl. 49, f. 1; Pat. Tab. Fung. f. 112; Qué. Champ. Jura Vosg. 1: pl. 7; Schaeff. Fung. Bavar. pl. 217; Trans. Wisc. Acad. 17: pl. 27, 28, f. A, B.

7. *Pholiota temnophylla* (Peck) Sacc. Syll. Fung. 5: 740. 1887.

Agaricus temnophyllus Peck, Ann. Rep. N. Y. State Cab. 23: 90. 1872.

Pileus 2.5–5 cm. broad, hemispheric becoming convex, ochraceous-yellow, cinnamon-buff to ochraceous-tawny in dried plants, smooth, glabrous, dry; lamellae obliquely sinuate-adnate, medium-close, 4–8 mm. broad, brownish-ferruginous; veil membranous, white, forming a distinct, superior, persistent annulus; stipe central, equal, white, glabrous, hollow, 5–10 cm. long, 4–8 mm. thick; spores elliptic to ovoid, usually slightly truncate at one end, smooth, $9-10.5 \times 6-7 \mu$; cystidia present but rather rare, flask-shaped or fusoid, hyaline, 17–21 μ in diameter, projecting prominently.

TYPE LOCALITY: Sandlake, New York.

HABITAT: Grassy ground by roadside.

DISTRIBUTION: Known only from the type locality, except as reported by Harper from Illinois.

ILLUSTRATION: Trans. Wisc. Acad. Sci. 17: pl. 33, f. A.

8. *Pholiota rugosa* Peck, Ann. Rep. N. Y. State Mus. 50: 102. 1897.

Pileus 8–25 mm. broad, broadly conic or campanulate to convex or plane, sometimes umbonate, yellowish-red or dark-ferruginous, cinnamon or tawny in herbarium specimens, hygrophonous, glabrous, slightly rugose at the center, striate on the margin, often upturned with age; context very thin, concolorous, without a characteristic odor or taste; lamellae at first adnate, becoming adnexed or free with age, medium-close, the edges usually minutely denticulate, 1–3 mm. broad, yellowish-white, becoming ferruginous or brownish-ferruginous, amber-brown in dried plants; veil forming a white, persistent, membranous, median annulus, striate on the upper side; stipe central, equal or tapering upward, yellowish above, brownish or blackish-brown below, finely floccose below the annulus, pruinose or mealy above, hollow, 1–2 cm. long, 1.5–4 mm. thick; spores elongate-elliptic, slightly truncate at one end, smooth, $8-11 \times 4-5 \mu$; cystidia none.

TYPE LOCALITY: Adirondack Mountains, New York.

HABITAT: On the ground in open woods; also in greenhouses.

DISTRIBUTION: New York, Pennsylvania, and Michigan.

9. *Pholiota blattaria* (Fries) Gill. Champ. Fr. 433. 1876.

Agaricus blattarius Fries, Syst. Myc. 1: 246. 1821.

Pileus 1–4 cm. broad, convex to plane, obtuse or more often somewhat umbonate, clay-colored to ferruginous or hazel, ochraceous or cinnamon-buff on drying, hygrophonous, glabrous, striate or striatulate on the margin when moist, often becoming somewhat rugose on parting with the moisture; context concolorous, with no odor and a mild taste; lamellae rounded behind, soon becoming free, 2–4 mm. broad, close, ventricose, clay-colored to cinnamon; veil forming a subpersistent superior or median annulus, often striate on the upper side; stipe central, equal or tapering upward, covered with small white fibrils either entirely or only at the base, whitish

or slightly brownish, hollow, 2.5–5 cm. long, 2–4 mm. thick; spores ovoid or narrow-ovoid, sometimes with a slightly truncate apex, $6.5\text{--}9 \times 4\text{--}5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On the ground in wooded or grassy places.

DISTRIBUTION: New York, Ohio, and Missouri; also in Europe.

10. *Pholiota togularis* (Bull.) Quéf. Champ. Jura Vosg. 92. 1872.

Agaricus togularis Bull. Herb. Fr. pl. 595, f. 2. 1793.

Pileus 1–4 cm. broad, campanulate or convex becoming nearly plane, watery-brown when fresh, hygrophanous, becoming ochraceous on drying, warm-buff or ochraceous-buff in dried specimens, striatulate on the margin when moist, glabrous, even or perhaps rugose at times; lamellae sinuate and narrowly attached, medium-close or subdistant, yellow becoming pale-ferruginous, often ochraceous-buff in dried specimens; veil forming a conspicuous, persistent, median annulus, striate on the upper side; stipe central, equal, yellow at the top and brownish at the base or entirely brownish, slightly fibrillose, hollow, 2.5–10 cm. long, 2–5 mm. thick; spores narrow-ovoid or ovoid, truncate at the apex, smooth, $9\text{--}10.5 \times 4\text{--}6 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On the ground in woods or pastures.

DISTRIBUTION: Massachusetts, Virginia, and Michigan; also in Europe.

ILLUSTRATIONS: Bull. Champ. Fr. pl. 595, f. 2; Boud. Ic. Myc. pl. 101; Cooke, Brit. Fungi pl. 350 (379); Gill. Champ. Fr. pl. 289 (530); Trans. Wisc. Acad. 17; pl. 59 (as *P. blattaria*).

11. *Pholiota filaris* (Fries) Peck, Bull. N. Y.

State Mus. 122: 144. 1908.

Agaricus togularis filaris Fries, Ic. Hymen. 2: 2. 1877.

Pileus 0.5–2 cm. broad, campanulate or convex to plane, ochraceous when fresh, tawny or cinnamon-rufous in dried plants, glabrous, dry, striate on the margin, the striae visible in dried plants; context very thin; lamellae adnate, medium-close, yellow becoming pale-ferruginous, tawny or cinnamon-rufous in dried plants, 1–2 mm. broad; veil forming a distinct, persistent, median or superior though distant annulus, striate on the upper side; stipe central, equal, glabrous or slightly fibrillose, pallid to brown, hollow, 2–5 cm. long, 1–2 mm. thick; spores elongate-ellipsoid or elongate-elliptic, often inequilateral, truncate at the apex, smooth, brown, $9\text{--}10.5 \times 4.5\text{--}5.5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On the ground in woods or pastures.

DISTRIBUTION: New York and Washington; also in Europe.

ILLUSTRATION: Fries, Ic. Hymen. pl. 104, f. 4 (as *Agaricus togularis*).

12. *Pholiota minima* Peck, Ann. Rep. N. Y.

State Mus. 41: 65. 1888.

Pileus 3–8 mm. broad, hemispheric or campanulate, umbonate, brown when moist, pale-buff or yellowish-white when dry, brown in herbarium specimens, hygrophanous, glabrous, striatulate on the margin when moist; lamellae adnexed, subdistant, ferruginous, cinnamon in dried plants, 1–2 mm. broad; veil forming an evanescent medium or superior annulus; stipe central, equal, concolorous with the pileus, shining, glabrous, solid, 1–2.5 cm. long, 1–2 mm. thick; spores ovoid or elliptic, minutely asperulate, $6\text{--}8.5 \times 3.5\text{--}4.5 \mu$; cystidia none.

TYPE LOCALITY: Catskill Mountains, New York.

HABITAT: Among hair-cap mosses.

DISTRIBUTION: New York and Alabama.

13. *Pholiota mycenoides* (Fries) Gill. Champ. Fr. 432. 1876.

Agaricus mycenoides Fries, Syst. Myc. 1: 246. 1821.

Pileus 0.5–2 cm. broad, at first convex, at maturity plane, rather thin and membranous, rusty-brown when moist, buckthorn-brown to ochraceous-tawny in herbarium specimens, hygrophanous, drying first at the center and becoming ochraceous to deep-cream-colored, glabrous, widely striate on the margin and sometimes white-fibrillose from the cobwebby veil; context concolorous, with no odor and a mild or subfarinaceous taste; lamellae adnate or somewhat sinuate, and becoming nearly free, sometimes uncinatate, medium-close or slightly distant,

rusty-brown, 2–3 mm. broad; veil forming a conspicuous, nearly median, membranous annulus, often striate on the upper side; stipe central, equal or tapering upward, slender, pallid to brown, glabrous or nearly so, hollow, 4–10 cm. long, 1–3 mm. thick; spores ovoid or broadly ovoid, truncate at the apex, smooth, $9\text{--}11.5 \times 6\text{--}7.5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: Among mosses, especially *Sphagnum*, in swampy places.

DISTRIBUTION: Massachusetts and perhaps Michigan; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. pl. 1, 2; Cooke, Brit. Fungi pl. 503 (405) B.

14. *Pholiota McMurryi* Murrill, Mycologia 4: 267. 1912.

Pileus 4–8 cm. broad, convex to nearly plane, rather thick and fleshy, greenish-yellow at the margin, orange-cinnamon at the center, ochraceous-orange to brown when dry, slimy-viscid, glabrous; context white, with no characteristic taste or odor; lamellae adnate or slightly sinuate, close, soon brownish, 4–8 mm. broad; veil forming an inconspicuous, fibrillose, superior, torn annulus; stipe central, equal, yellowish-white, solid, below the annulus rough with several conspicuous ridges, 4–6 cm. long, 1–2 cm. thick; spores ovoid or elliptic, quite rough, $13\text{--}17\text{--}21 \times 7\text{--}7.5\text{--}10 \mu$; cystidia none.

TYPE LOCALITY: Searsville Lake, California.

HABITAT: On the ground among leaves in oak woods.

DISTRIBUTION: Known only from the type locality.

15. *Pholiota albivelata* Murrill, Mycologia 4: 260. 1912.

Pileus 2–6 cm. broad, convex to plane, sometimes somewhat umbonate, isabelline tinted with rose, resembling the color of some species of *Gomphidius*, the umbo slightly darker, honey-yellow to light-clay-colored in herbarium specimens, slimy-viscid, glabrous; lamellae adnate or slightly sinuate, ventricose, medium-close or slightly subdistant, becoming fulvous, the edges white-crenate; veil forming a large erect or pendent, superior or median, persistent annulus, pure-white on the lower side, brown on the upper side from the spores and striate from the lamellae; stipe central, equal, usually heavily white-floccose just below the annulus, pruinose or slightly floccose above, becoming subglabrous and rarely yellowish toward the base, solid or hollow, 5–8 cm. long, 4–10 mm. thick; spores ovoid to narrow-ellipsoid, smooth, slightly apiculate at one end, $8\text{--}10 \times 4.5\text{--}5.5 \mu$; cystidia abundant, not projecting conspicuously, small, hyaline with a rounded conspicuous dark-staining body at the apex, sometimes pointed, but more often obtuse, $30\text{--}35 \times 7.5\text{--}9 \mu$.

TYPE LOCALITY: Seattle, Washington.

HABITAT: On the ground in woods.

DISTRIBUTION: Washington and Oregon.

16. *Pholiota trachyspora* Clements, Crypt. Form. Colo. 373. 1907.

Pileus 2.5–6 cm. broad, convex or plane, deep-golden- or coffee-brown to dark-melleous, entirely covered with floccose fibrils of the same color matted or collected into squamules, particularly at the center of the pileus, dry; lamellae adnate to adnexed, deep-brown, medium-close, 3–6 mm. broad; veil forming a persistent or evanescent, superior annulus; stipe central, equal, fibrillose, umber-brown, 4–8 cm. long, 4–10 mm. thick; spores broadly ovoid or subglobose, dark under the microscope, decidedly rough-walled, $7\text{--}9 \times 5\text{--}6 \mu$; cystidia none.

TYPE LOCALITY: Sugar Loaf Park, Colorado.

HABITAT: On the ground in woods.

DISTRIBUTION: Known only from the type locality.

17. *Pholiota anomala* Peck, Bull. Torrey Club 22: 202. 1895.

Pileus 1.5–2.5 cm. broad, at first hemispheric or subconic, then convex, broccoli-brown when moist, pale-yellow or cream-colored when dry, warm-buff in dried plants, hygrophaneous, glabrous; lamellae adnate or decurrent, medium-close or slightly distant, 3–4 mm. broad, pale becoming brownish-ferruginous, ochraceous-orange to cinnamon in dried plants; veil forming a slight, finally evanescent annulus; stipe central, equal, fibrillose or glabrous, whitish or brownish, hollow with irregular transverse partitions or these filled with a cottony tomentum, 3–6 cm. long, 2–6 mm. thick; spores oblong-ellipsoid, smooth, very dilutely colored, $7.5\text{--}10 \times 4\text{--}5 \mu$;

cystidia present, inconspicuous, or so rare as to pass unnoticed, clavate and attenuate sometimes to a long whip-like point that projects 10–15 μ beyond the basidia, 40–50 \times 5–7 μ .

TYPE LOCALITY: Pasadena, California.

HABITAT: On sticks and leaves on the ground.

DISTRIBUTION: Known only from the type locality.

18. *Pholiota duroides* Peck, Bull. N. Y. State Mus. 122: 148. 1908.

Pileus 3.5–9 cm. broad, convex becoming nearly plane, dry or moist but not hygrophanous, creamy-white to ochraceous-buff, chamois, or cinnamon-buff or nearly ochraceous-orange, retaining these colors on drying, glabrous or slightly appressed-squamose or with spot-like scales or depressions in the center, even on the margin; context white, with a mild taste; lamellae adnexed or sinuate-adnate, sometimes with a decurrent tooth, close, narrow, 2–5 mm. broad, whitish becoming brown or rusty-brown, with white-crenulate edges, cinnamon-buff or snuff-brown when mature; veil forming a superior, white, membranous, pendent or rolled, subsistent annulus, often striate on the upper side; stipe central, equal or enlarged below, glabrous, or at times fibrillose-scaly below, whitish, stuffed or hollow, 3–10 cm. long, 4–15 mm. thick; spores ellipsoid or ovoid, smooth, 4–6 \times 3–4.5 μ ; cystidia present, inconspicuous, pointed, scarcely projecting, 8.5–10 μ in diameter.

TYPE LOCALITY: Syracuse, New York.

HABITAT: On the ground in waste places, especially in open woods.

DISTRIBUTION: Massachusetts and New York to Virginia and Tennessee.

19. *Pholiota Johnsoniana* (Peck) Atk. Stud. Am. Fungi 153. 1900.

Agaricus Johnsonianus Peck, Ann. Rep. N. Y. State Cab. 23: 98. 1872.

Stropharia Johnsoniana Peck, Ann. Rep. N. Y. State Mus. 41: 84. 1888.

Pileus 3–10 cm. broad, convex or nearly plane, usually thick at the center and thin on the margin, yellowish or ochraceous, or yellow in the center and white on the margin, more or less cinnamon-buff in dried specimens, glabrous or at times with small appressed squamules in the center, dry, thin and sometimes striatulate on the margin; context white, with agreeable taste; lamellae adnate or sinuate-adnate, close, 2–5 mm. broad, whitish then rusty-brown, snuff-brown to bister in dried specimens; veil forming a thick, white, persistent, cottony roll on the stipe; stipe central, equal, glabrous, light-colored, solid, slightly striate at the top, 7–10 cm. long, 0.8–1.5 cm. thick; spores ovoid or ellipsoid, smooth, 5–8.5 \times 3–4 μ ; cystidia scarcely noteworthy in some plants and quite conspicuous in others, some imbedded and blunt, others projecting and usually pointed.

TYPE LOCALITY: Knowersville, New York.

HABITAT: On grassy ground in pastures or in leaf mold in woods in late summer.

DISTRIBUTION: Connecticut to North Carolina and westward to Michigan.

ILLUSTRATIONS: Atk. Stud. Am. Fungi *pl.* 44; ed. 2. *pl.* 49; Ann. Rep. N. Y. State Cab. 23: *pl.* 3, *f.* 4–6; Mycologia 7: *pl.* 163, *f.* 10.

20. *Pholiota terrestris* Overholts, sp. nov.

Pileus 1–3 cm. broad, convex, uniform sayal-brown to cinnamon-brown in dried plants, dry, squamulose with appressed dark-colored, fibrillose scales, or fibrillose only on the margin; lamellae adnate or slightly decurrent, medium-close, 2–4 mm. broad, bright-cinnamon; veil ample, membranous, not forming a distinct annulus but sometimes adhering considerably to the margin of the pileus; stipe central, equal, pallid above, brown below, floccose at the apex, distinctly scaly below the sheathing veil-remnants on the stipe, 3–6 cm. long, 2–5 mm. thick; spores oblong-ellipsoid, smooth, 5.5–6.5 \times 3.5–4.5 μ ; cystidia of several inconspicuous types, none projecting strongly, some brown or with a brown mass within.

Type collected on a lawn at Corvallis, Oregon, November 11, 1915, *H. C. Gilbert* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

21. *Pholiota erinaceella* Peck, Bull. N. Y.
State Mus. 122: 152. 1908.

Agaricus detersibilis Peck, Ann. Rep. N. Y. State Mus. 28: 49. 1876. Not *A. detersibilis* Berk. & Curt. 1853.

Agaricus erinaceellus Peck, Ann. Rep. N. Y. State Mus. 30: 70. 1878.

Pileus 0.5–2.5 cm. broad, hemispheric, then convex or nearly plane, tawny-brown, not changing color in drying, dry, densely covered with minute erect pyramidal, spine-like, or granular tawny scales; lamellae adnexed or adnate, medium-close, or subdistant when young, 1–2 mm. broad, pallid then cinnamon-brown; veil forming a slight, superior, floccose, evanescent annulus; stipe central, equal, tawny, with crowded, erect, floccose scales or granules below the annulus, smooth above, stuffed or hollow, 1.5–2.5 cm. long, 1–1.5 mm. thick; spores ellipsoid or naviculoid, smooth, very dilute-brown under the microscope, $7-8 \times 4-5 \mu$; cystidia none on the sides but protruding abundantly from the edges of the lamellae.

TYPE LOCALITY: Lake Pleasant, New York.

HABITAT: On dead wood of deciduous trees.

DISTRIBUTION: New York, Michigan, and Missouri.

ILLUSTRATION: Trans. Wisc. Acad. 17: pl. 51.

22. *Pholiota muricata* (Fries) Quél. Champ. Jura Vosg. 231. 1872.

Agaricus muricatus Fries, Obs. Myc. 2: 12. 1818.

Pileus 1–3 cm. broad, convex to plane, obtuse or often slightly umbilicate-depressed, golden-brown or tawny-yellowish when fresh, brown or cinnamon-brown in dried plants, covered with a dense cuticle of short tawny fibrils or fibrillose-tufted scales, or granulose-squarrose at the center, dry; context thin, yellowish, with a mild odor and no taste; lamellae sinuate-adnate, often nearly free in aging, medium-close or slightly distant, light-yellow then cinnamon-brown or rusty-brown, the edges white-crenate, 3–4 mm. broad; veil forming an indistinct, superior, evanescent annulus; stipe central, equal, yellowish but with few, rusty-brown, fibrillose, suberect scales or becoming nearly glabrous, stuffed then hollow, 3–7 cm. long, 2–5 mm. thick, sometimes with a bright-yellow mycelium at the base; spores ellipsoid, smooth, $6-8 \times 3.5-4 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On rotting logs of deciduous trees.

DISTRIBUTION: Michigan and Illinois; also in Europe.

ILLUSTRATION: Trans. Wisc. Acad. 17: pl. 52, 53.

23. *Pholiota curvipes* (Fries) Quél. Champ. Jura Vosg. 230. 1872.

Agaricus curvipes Fries, Epicr. Myc. 168. 1838.

Pileus 2–5 cm. broad, convex to plane, ochraceous-orange, more tawny with age and in herbarium specimens, at first innately floccose or silky-floccose, on aging breaking up into small fibrillose scales, even, dry, even on the margin; context yellow, thin, with no odor and a mild taste; lamellae adnate, medium-close to slightly distant, bright-ochraceous-orange when mature and in dried specimens, the edges white, conspicuously floccose-crenate, 3–6 mm. broad; veil forming a superior, soon evanescent, radiate-floccose annulus, or annulus none; stipe central, equal or tapering upward, ochraceous-orange or ochraceous-tawny, clear-yellow at the apex, decidedly floccose-fibrillose, hollow, 2.5 cm. long, 2–5 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, $7-8.5 \times 4-5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On dead wood of deciduous trees.

DISTRIBUTION: Maine, New York, and Michigan; also in Europe.

ILLUSTRATIONS: Cooke, Brit. Fungi pl. 370 (398) B; Fries, Ic. Hymen. pl. 104, f. 3.

24. *Pholiota aeruginosa* Peck, Ann. Rep. N. Y.
State Mus. 43: 81 (35). 1890.

Flammula viridans Murrill, Mycologia 4: 262. 1912.

Pileus 2–10 cm. broad, convex, greenish becoming tinged with yellow or brown, drab to cinnamon or ochraceous-buff in dried specimens, dry, at first glabrous, usually soon more or less areolate with each areola surmounted by one to three fibrillose scales, or sometimes completely squamulose without areolae; context with a green tinge, yellowish in dried plants;

lamellae adnate or sinuate-adnate, easily separating, 3–7 mm. broad, pale-ochraceous when young, becoming ochraceous-orange or apricot-buff on drying; veil leaving only a slight lacerated annulus or entirely evanescent; stipe central or excentric, equal or nearly so, glabrous or slightly fibrillose, sometimes sulcate-striate, colored like the pileus, solid, 3–8 cm. long, 4–10 mm. thick; spores ellipsoid or elliptic, slightly echinulate when mature, $6-7.5 \times 3.5-4.5 \mu$; cystidia none.

TYPE LOCALITY: Trexlertown, Pennsylvania.

HABITAT: On decaying wood, probably mostly of coniferous trees.

DISTRIBUTION: New York and Pennsylvania, and westward to Arkansas, Idaho, and Washington.

25. *Pholiota luteofolia* (Peck) Sacc. Syll. Fung. 5: 756. 1887.

Agaricus luteofolius Peck, Ann. Rep. N. Y. State Mus. 27: 94. 1875.

Pileus 2–6 cm. broad, convex, very young specimens dark-red or reddish-brown, becoming pinkish-red or yellowish-red when mature, ochraceous-buff or ochraceous-tawny in dried plants, dry, appressed-fibrillose-squamulose and sometimes areolate in the center, fibrillose on the margin; context fleshy, thin, typically lavender in fresh plants, bitter; lamellae adnate or uncinatae, sometimes becoming sinuate-adnate, medium-close or somewhat distant, 3–8 mm. broad, yellow becoming bright-ferruginous, mostly ochraceous-buff or ochraceous-orange in dried specimens; veil forming a slight, fugacious, spore-stained annulus; stipe central or somewhat excentric, equal or enlarged downward, concolorous with the pileus, fibrillose, solid, 3–9 cm. long, 3–10 mm. thick; spores ellipsoid to elliptic, slightly rough, $6-9.5 \times 3.5-4.5 \mu$; cystidia none or not noteworthy.

TYPE LOCALITY: Forestburgh, New York.

HABITAT: Dead wood of deciduous trees.

DISTRIBUTION: New York, Ohio, Illinois, and Missouri.

ILLUSTRATION: Trans. Wisc. Acad. 17: pl. 48.

26. *Pholiota cerasina* (Peck) Sacc. Syll. Fung. 5: 744. 1887.

Agaricus cerasinus, Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Plants cespitose, 5–12 cm. broad, convex to plane, cinnamon-colored to tawny, perhaps lighter at times, somewhat hygrophanous, glabrous or nearly so, even on the margin; context fleshy, rather thin, with a bitter taste and an amygdaline odor that is best noticed in young plants; lamellae medium-close or slightly distant, sinuate to adnate or slightly decurrent, yellow, becoming cinnamon or ferruginous, finally pruinose from the spores, 5–12 mm. broad; veil present, forming an early evanescent spore-stained annulus; stipe central or more often excentric, equal or enlarged below, concolorous with the pileus, fibrillose at least at the apex, solid or stuffed, 5–15 cm. long, 5–12 mm. thick; spores elliptic to ovoid, slightly roughened, brown, $6-9 \times 4.5-5.5 \mu$; cystidia none.

TYPE LOCALITY: Sterling, New York.

HABITAT: On dead wood of deciduous trees.

DISTRIBUTION: Maine, Vermont, and New York.

27. *Pholiota spectabilis* (Weinm.) Gill. Champ. Fr. 443. 1876.

Agaricus spectabilis Weinm.; Fries, Elench. Fung. 1: 28. 1828.

Pholiota lutea Peck, Ann. Rep. N. Y. State Mus. 51: 288. 1898.

Pholiota ventricosa Earle, Bull. N. Y. Bot. Gard. 2: 341. 1902.

Pileus 4–15 cm. broad, convex becoming nearly plane, buff-yellow to apricot-orange or zinc-orange, becoming at times slightly more brownish (tawny) in dried plants, dry or moist, finely silky, or in some very young plants practically glabrous at times, to distinctly fibrillose or rivulose or in mature plants squamulose, even on the margin; context yellow, with a bitter or amygdaline taste; lamellae adnexed to adnate or with decurrent teeth or lines, medium-close, 3–8 mm. broad, yellow becoming ferruginous, yellow-ochre to ochraceous-orange or tawny in dried specimens; veil forming a distinct, superior or apical, spore-stained, persistent or subpersistent annulus, sometimes striate on the upper side; stipe central or nearly so, nearly equal to decidedly ventricose or bulbous at the base, yellow or tawny, yellow and floccose above the annulus, fibrillose or furfuraceous below, 3–15 cm. long, 0.5–3 cm. thick, solid; spores elliptic, rough, $7.5-9 \times 4.5-6 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On stumps and trunks of deciduous or rarely coniferous trees, or growing from buried wood.

DISTRIBUTION: Ontario to Alabama, and westward to the Pacific coast; also in Europe.

ILLUSTRATIONS: G. Bernard, Champ. Rochelle *pl.* 55, *f.* 1. Cooke, Brit. Fungi *pl.* 352 (394); Fries, Ic. Hymen. *pl.* 102; Gill, Champ. Fr. *pl.* 299 (529); Trans. Wisc. Acad. 17: *pl.* 44, 50; C. H. Kauffman, Agar. Mich. *pl.* 61; Mycologia 1: *pl.* 7, *f.* 4.

28. *Pholiota Schraderi* (Peck) Overholts.

Stropharia Schraderi Peck, Bull. Torrey Club 32: 80. 1905.

Pileus 5–8 cm. broad, convex or nearly plane, pallid when young, ochraceous-buff when mature, dry, fibrillose, squamulose, or rimose-squamulose on the disk; context white, with a taste of radishes; lamellae adnate, close, thin, whitish then brown; veil forming a small, lacerate, white, sometimes evanescent annulus; stipe central, subequal, squamulose and concolorous with the pileus below, white and mealy above, solid, 2–4 cm. long, 8–12 mm. thick; spores ovoid, not apiculate, smooth, 6–8 (–9) × 4–6 μ; cystidia rather abundant, hyaline, fusoid, projecting rather prominently; also irregular organs as though post-mature basidia imbedded in the hymenium.

TYPE LOCALITY: Washington, District of Columbia.

HABITAT: In sandy soil about stumps.

DISTRIBUTION: Known only from the type locality.

29. *Pholiota rigidipes* Peck, Bull. N. Y. State Mus. 157: 31. 1912.

Pileus 4–8 cm. broad, broadly convex, sometimes slightly or broadly umbonate, pale-yellow or buff, buff-yellow to ochraceous-buff or ochraceous-orange in dried plants, squamulose with scattered, appressed, slightly darker-colored, fibrillose scales, more prominent in the center though never conspicuous and partially disappearing in mature plants; context white, tinged yellow next to the lamellae, distinctly yellow in dried plants, with a mild taste; lamellae sinuate-adnate or adnate, medium-close, 3–7 mm. broad, cinnamon or ochraceous-tawny and retaining these colors in drying; veil forming a slight, often evanescent annulus; stipe central, equal, pallid or yellowish and fibrillose-squamulose or becoming nearly glabrous below the annulus, white and pruinose at the apex, stuffed or hollow, 5–9 cm. long, 4–6 mm. thick; spores oblong or oblong-ellipsoid, smooth, 6.5–8.5 × 3.5–4.5 μ; cystidia present, not always abundant, brown, some projecting, 25–40 × 6–8 μ.

TYPE LOCALITY: Constableville, New York.

HABITAT: On the ground in woods, probably always on buried or exposed wood.

DISTRIBUTION: New York, New Jersey, and Missouri.

30. *Pholiota oregonensis* Murrill, Mycologia 4: 262. 1912.

Hypodendrum oregonense Murrill, Mycologia 4: 261. 1912.

Pileus apparently 5 cm. or broader when mature, convex, obtuse, thick and fleshy, dry, smooth, glabrous, ochraceous-buff to ochraceous-tawny and retaining these colors when dried, strongly incurved on the margin; context thin, cremeous, with an agreeable nutty or amygdaline taste in dried plants; lamellae adnate, medium-distant to distant, yellow or yellowish-brown, becoming darker, strongly interveined, the edges irregular; veil forming a superior, or nearly apical, irregular, yellowish-white annulus; stipe central or excentric, terete or compressed, equal or enlarged upward or downward, yellowish above, fulvous below, with small, scattered, unicolorous, subfloccose, evanescent scales pointing upward, solid, 6–10 cm. long, 8–20 mm. thick; spores ovoid or elliptic, smooth, 7.5–10 × 3–5 μ; cystidia none or not noteworthy.

TYPE LOCALITY: Glen Brook, Oregon.

HABITAT: On decayed spot in trunk of living willow.

DISTRIBUTION: Known only from the type locality.

31. *Pholiota mutabilis* (Schaeff.) Quéf. Champ. Jura Vosg. 94. 1872.

Agaricus mutabilis Schaeff. Fung. Bavar. 4: Ind. 6. 1774.

Pileus 1.5–3 cm. broad, convex to plane, cinnamon when moist, paler when dry, ochraceous-buff in dried plants, hygrophanous, glabrous; lamellae adnate or slightly decurrent, medium-

close, 2–4 mm. broad, pallid then cinnamon; veil forming a white or dark, superior, evanescent or persistent annulus; stipe central, equal, concolorous with the pileus, decidedly scaly below the ring, pruinose above, stuffed then hollow, 3–7 cm. long, 3–5 mm. thick; spores ovoid or elliptic, slightly truncate at one end, smooth, $6-7.5 \times 4-5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On stumps and logs.

DISTRIBUTION: Ohio and Colorado; also in Europe.

ILLUSTRATIONS: Batsch, Elench. Fung. Contin. *pl.* 38, *f.* 208; Bres. Funghi Mang. *pl.* 51; Cooke, Brit. Fungi *pl.* 355 (402); Fries, Sv. Aetl. Svamp. *pl.* 47; Lanzi, Funghi Mang. *pl.* 76, *f.* 3; Schaeff. Fung. Bavar. *pl.* 9.

32. *Pholiota confragosa* (Fries) Sacc. Syll. Fung. 5: 758. 1887.

Agaricus confragosus Fries, Epicr. Myc. 169. 1838.

Pileus 1–2.5 cm. broad, convex to nearly plane, cinnamon-rufous when moist, tawny when dry, nearly uniform warm-buff or cinnamon-buff in dried plants, densely and finely floccose-squamulose or floccose-fibrillose under a lens, on aging becoming somewhat denuded at times but never entirely so, hygrophanous, striate on the margin when moist; context fleshy-fragile, pallid, with no marked odor or taste; lamellae adnate or slightly decurrent, sometimes white-crenulate on the edges, medium-close, 1–3 mm. broad, rufous to cinnamon-brown; veil forming a superior, membranous annulus, erect and subrigid for a time, finally more annulate and in rare cases all but disappearing; stipe central, equal or enlarged just at the base, concolorous with the pileus or paler, markedly fibrillose below the annulus and sometimes white-tomentose or strigose at the base, floccose and sometimes striate above, 2–5 cm. long, 1.5–5 mm. thick; spores ellipsoid or broadly ellipsoid, smooth, not truncate, dilutely colored under the microscope, $6-8 \times 4-5 \mu$; cystidia none except for radiating tufts on the edges of the lamellae.

TYPE LOCALITY: Europe.

HABITAT: Rotten mossy trunks of deciduous trees.

DISTRIBUTION: New England, New York, and Michigan; also in Europe.

ILLUSTRATIONS: Fries, Ic. Hymen. *pl.* 105, *f.* 2; Trans. Wisc. Acad. 17: *pl.* 41, *f.* D, E.

33. *Pholiota furcata* Overholts, sp. nov.

Pileus 1–3 cm. broad, convex to plane, somewhat gibbous at times, reddish-brown when moist, ochraceous when dry, cinnamon-buff in dried plants, hygrophanous, glabrous, even on the margin and at first incurved; context concolorous, with no odor; lamellae slightly decurrent, close, ochraceous to dull-cinnamon, 2–3 mm. broad, conspicuously forked and connected by veins so as to appear somewhat porous; veil forming a superior, distinct but somewhat evanescent annulus; stipe central, equal, dark-watery-brown, floccose-pruinose above the annulus, white-fibrillose below, solid or spongy, 1.5–2.5 cm. long, 2–3 mm. thick; spores ovoid or ellipsoid, somewhat rough at maturity, $7.5-9.5 \times 4.5-6 \mu$; cystidia present and fairly abundant, hyaline, flask-shaped, ending in a long projecting tip.

Type collected on old mossy logs in Van Cortlandt Park, New York, November 3, 1903, F. S. Earle 1881 (herb. N. Y. Bot. Gard.).

34. *Pholiota marginella* Peck, Ann. Rep.

N. Y. State Mus. 51: 289. 1898.

Pileus 1–4 cm. broad, convex becoming nearly plane, buckthorn-brown or yellowish-red when young or moist, whitish or yellowish-buff when dry, warm-buff or cinnamon-buff in dried plants, hygrophanous or at times subviscid, glabrous, striatulate on the margin when young, and slightly silky with whitish fibrils; lamellae sinuate-adnexed* or sinuate-uncinate*, easily separating, medium-close, 1–4 mm. broad, minutely eroded on the edges, whitish becoming dark-ferruginous; veil forming a slight or well-developed fugacious annulus; stipe central, equal, fibrillose below, pruinose above the annulus, stuffed or hollow, whitish or pallid, sometimes with a white tomentum at the base, 3–10 cm. long, 1–6 mm. thick; spores ellipsoid or ovoid, smooth, slightly truncate at one end, brown, $6-8 (-9) \times 3.5-4.5 \mu$; cystidia none.

TYPE LOCALITY: North Elba, New York.

HABITAT: Decaying wood or on sawdust piles.

DISTRIBUTION: New Hampshire to New Jersey, and westward to the Pacific coast.

ILLUSTRATION: Ann. Rep. N. Y. State Mus. 51: *pl.* B, *f.* 12–20.

35. *Pholiota marginata* (Batsch) Quél. Champ.
Jura Vosges 94. 1872.

Agaricus marginatus Batsch, Elench. Fung. 65. 1783.

Agaricus (Naucoria) autumnalis Peck, Ann. Rep. N. Y. State Cab. 23: 92. 1872.

Naucoria autumnalis Sacc. Syll. Fung. 5: 834. 1887.

Pholiota autumnalis Peck, Bull. N. Y. State Mus. 122: 156. 1908.

Pileus 1.5–7 cm. broad, convex to plane or slightly depressed, sometimes somewhat umbilicate, more rarely slightly umbonate, argus-brown, cinnamon-brown, or Sudan-brown when moist, warm-buff to ochraceous-orange when dry, usually of the latter colors in dried plants, hygrophanous, glabrous, usually striatulate on the margin when moist and often extending somewhat beyond the lamellae; context fleshy, thin, concolorous with pileus, with a farinaceous taste and odor; lamellae sinuate-adnate to adnate or slightly decurrent, medium-close to slightly distant, 2–7 mm. broad, light-yellowish-brown to buckthorn-brown; veil forming a fugacious or subpersistent annulus; stipe central, nearly equal or somewhat swollen just at the apex, fibrillose, pruinose at the apex and with a white tomentum at the base, concolorous or lighter than the pileus, hollow, 2–8 cm. long, 2–6 (–10) mm. thick; spores elliptic or ovoid, often smooth when young, with a rough wall when mature, $7-9.5 \times 4.5-6 \mu$; cystidia present, but usually not abundant, flask-shaped with a long apex that projects $15-25 \mu$, hyaline, $50-80 \times 10-15 \mu$.

TYPE LOCALITY: Europe.

HABITAT: On rotting wood, either exposed or buried, of either deciduous or coniferous trees; often on sawdust.

DISTRIBUTION: Massachusetts to Alabama and westward to Missouri and Minnesota; also in Europe.

ILLUSTRATIONS: Atk. Stud. Am. Fungi f. 143; ed. 2. f. 147; Cooke, Brit. Fungi pl. 372 (403); Hard, Mushr. f. 215; Trans. Wisc. Acad. 17: pl. 54, 55; Ricken, Blätterp. Deutschl. pl. 56, f. 7.

36. *Pholiota discolor* (Peck) Sacc. Syll. Fung. 5: 744. 1887.

Agaricus discolor Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Pileus 1–3 (–5) cm. broad, convex, then expanded or slightly depressed, cinnamon-rufous, bright-ochraceous-yellow when dry, cinnamon-buff, ochraceous-orange, or cinnamon in dried plants, hygrophanous, smooth, viscid, striatulate on the margin when moist, even when dry; lamellae adnate or with a decurrent tooth, medium-close or somewhat distant, 1–3 mm. broad, pallid then pale-ferruginous, mikado-brown or russet in dried plants; veil forming a subpersistent, distinct annulus; stipe central, equal, pallid, fibrillose-striate, hollow, 2.5–8 cm. long, 1.5–5 mm. thick; spores elliptic, rough-walled or smooth before maturity, dilute-brown under the microscope, $7-9 \times 4-6 \mu$; cystidia present, projecting, flask-shaped, $40-70 \times 10-12 \mu$.

TYPE LOCALITY: Greig, New York.

HABITAT: On old logs and on rotten wood.

DISTRIBUTION: New York to Alabama and westward to Michigan.

ILLUSTRATION: Trans. Wisc. Acad. 17: pl. 61, f. B.

37. *Pholiota unicolor* (Vahl) Gill. Champ. Fr. 436. 1876.

Agaricus unicolor Vahl, Fl. Dan. 18: 7. 1792.

Pileus 0.5–2 cm. broad, campanulate to conic-campanulate or somewhat convex, often sharply umbonate, cinnamon-buff to ochraceous-buff or ochraceous-orange, herbarium specimens cinnamon to ochraceous-tawny, glabrous, hygrophanous, striate or fluted on the margin; context thin, with a somewhat farinaceous taste; lamellae squarely adnate, often becoming somewhat free with the expansion of the pileus, rather close, subtriangular in shape, more or less tawny or ferruginous; veil forming a persistent, median or superior, upright, funnel-shaped annulus; stipe central, equal, yellowish-brown, decidedly floccose-mealy above the annulus, fibrillose below or the base white-tomentose, hollow, 2.5–5 cm. long, 2–4 mm. thick; spores ovoid or elliptic, smooth or slightly rough when mature, $7.5-10 \times 5-6 \mu$; cystidia rare, projecting, flask-shaped, hyaline, pointed.

TYPE LOCALITY: Europe.

HABITAT: On rotten wood of coniferous or deciduous trees.

DISTRIBUTION: Maine to Alabama; on the Pacific coast and in Mexico; also in Europe.

ILLUSTRATIONS: Bull. Herb. Fr. pl. 530, f. 2; Cooke, Brit. Fungi pl. 356 (404) B; Fl. Dan. pl. 1071, f. 1.

38. *Pholiota acericola* (Peck) Sacc. Fung. 5: 759. 1887.

Agaricus acericola Peck, Bull. Buffalo Soc. Nat. Sci. 1: 50. 1873.

Pileus 2.5–7.5 cm. broad, broadly convex or nearly plane, rarely somewhat umbonate, cream-buff to clay-colored or buckthorn-brown when young and moist, buff-yellow or Naples-yellow when old, frequently somewhat darker at the center than at the margin, not strongly hygrophanous but changing color from young to old condition, clay-colored to tawny in herbarium specimens, glabrous, rugosely reticulated or corrugated, even at the margin and sometimes upturned; context thin, white, with a farinaceous taste and odor; lamellae sinuate-adnate or with a small decurrent tooth, medium-close, 2.5–7 mm. broad, grayish becoming brownish-ferruginous or at some stages with a purplish cast, the edges floccose-crenulate; veil forming a large persistent, or rarely evanescent, membranous, superior, or in some instances nearly median, deflexed, white annulus, sometimes of a rich-brown color and striate on the upper side; stipe central, equal or thickened at the base, fibrillose-striate to nearly glabrous, white or whitish, stuffed or hollow, typically with more or less of a white tomentum and strings of mycelium at the base, 6–11 cm. long, 4–15 mm. thick; spores ovoid or ovoid-elliptic, with a truncate apex, smooth, dull-brown, $8.5\text{--}10.5 \times 5\text{--}6 \mu$; cystidia present but not abundant, flask-shaped or broadly fusoid but only the tips projecting so not conspicuous, the tips rarely two- to three-forked, $15\text{--}20 \mu$ in diameter below.

TYPE LOCALITY: North Elba, New York.

HABITAT: Mossy rotted trunks of deciduous trees, perhaps also on coniferous wood; rarely on the ground around rotting logs or on leaf-mold.

DISTRIBUTION: Connecticut to North Carolina and Alabama, and westward to Ohio, Colorado, and California.

39. *Pholiota Aegerita* Briganti, Quél. Champ.

Jura Vosg. 229. 1872.

Agaricus Aegerita Briganti, Funghi Litogr. Napol. pl. 1. 1824.

Pileus 3–13 cm. broad, subhemispheric to convex and then expanded, avellaneous to chamois, cinnamon in dried plants, dry, glabrous, rugulose on the margin when young; context white, firm; lamellae adnate or becoming nearly free, sometimes slightly decurrent in lines on the stipe, close or medium-close, 4–8 mm. broad, dark-brown; veil forming a median-superior, persistent, conspicuous annulus; stipe central, nearly equal, brownish, more or less white-fibrillose, solid, 4–15 cm. long, 4–10 mm. thick; spores ovoid or more often elongate-ovoid or elongate-elliptic, smooth, $9\text{--}11 \times 4.5\text{--}6 \mu$; cystidia present but not conspicuous, projecting somewhat, hyaline, $6\text{--}10 \mu$ in diameter, some pointed.

TYPE LOCALITY: Europe.

HABITAT: On recently felled trunks or from wounds in deciduous trees.

DISTRIBUTION: Michigan; also in Europe.

ILLUSTRATIONS: Bres. Funghi Mang. pl. 50; Cooke, Brit. Fungi pl. 453 (386); Paulet & Lév. Ic. Champ. pl. 145 (as *Hypodendrum populneum*).

40. *Pholiota destruens* (Brondeau) Gill. Champ. Fr. 442. 1876.

Agaricus destruens Brondeau, Pl. Crypt. Agen. pl. 6. 1828–30.

?*Agaricus heteroclitus* Fries, Obs. Myc. 2: 223. 1818.

?*Agaricus comosus* Fries, Epicr. Myc. 165. 1838.

Pileus 6–15 cm. broad, heavy-fleshy, convex to expanded, sometimes umbonate, pallid or more often cervine or wood-brown, the cuticle sometimes weathering off to a white color, subviscid, with scattered, large, white, floccose patches or squamules that are rather adnate and sometimes imbricate and may disappear, frequently rivulose on the margin and with white fibrils or fibrillose scales; context white, thick, with no marked odor and a mild or saponaceous taste; lamellae adnate to sinuate, close or crowded, at first white, finally deep-cinnamon, 4–14 mm. broad; veil white, soon breaking, forming an evanescent, white, floccose-tomentose annulus; stipe central or excentric, equal or enlarged downward, white-floccose-tomentose above the annulus, with a few large white squamules or indistinctly and broadly peronate from the veil fibers, white to wood-brown, 5–15 cm. long, 1.5–6 cm. thick, solid; spores ovoid or ellipsoid, smooth, $7.5\text{--}9.5 \times 4\text{--}5 \mu$; cystidia none.

TYPE LOCALITY: Europe.

HABITAT: On stumps and trunks of *Populus* and other deciduous trees.

DISTRIBUTION: New York and westward to the Pacific coast; also in Europe.

ILLUSTRATIONS: Bres. Fungi Trid. pl. 84; Hard, Mushr. f. 214; Kalchbr. Ic. Hymen. Hung. pl. 13, f. 1 (as *P. comosa*); Trans. Wisc. Acad. 17: pl. 45–47.

41. *Pholiota bryophila* Murrill, Mycologia 5: 33. 1913.

Pileus 0.5–2 cm. broad, plane or slightly depressed, isabelline, smooth, dry, glabrous, regular on the margin, appearing somewhat obtuse because of the broad lamellae; lamellae adnate, slightly distant, ventricose, 2–3 mm. broad, yellowish to brown; veil forming a white, conspicuous, persistent annulus, attached slightly above the middle of the stipe; stipe central, terete, equal, often curved, smooth, glabrous, subconcolorous, slender and rather tough, 2 cm. long, 1–2 mm. thick; spores ovoid to ellipsoid, rough, $8-9.5 \times 5-6 \mu$; cystidia none.

TYPE LOCALITY: Orizaba, Mexico.

HABITAT: Among moss on a moist limestone cliff.

DISTRIBUTION: Known only from the type locality.

42. *Pholiota Brittoniae* Murrill, Mycologia 5: 35. 1913.

Pileus reaching 10 cm. broad, large and fleshy, cespitose, convex to expanded, becoming depressed at the center, fulvous, becoming fuliginous or blackish with age, dry, imbricate-fibrillose to subglabrous, entire, concolorous, and strongly inflexed on the margin on drying; lamellae sinuate with a decurrent tooth reaching as far as the annulus, seceding with age, broad, irregular in shape, subdistant, ferruginous, darker with age; veil forming an ample, membranous, ferruginous, persistent annulus fixed near the apex of the stipe; stipe enlarged below, concolorous, blackening with age, longitudinally furrowed, hollow, reaching 10 cm. long and 1–3 cm. thick; spores broadly ellipsoid to subglobose, roughened with an irregular sculpturing, ferruginous, $8-10 \mu$; cystidia none.

TYPE LOCALITY: Cinchona, Jamaica.

HABITAT: At the base of living or dead trees.

DISTRIBUTION: Known only from the type locality.

43. *Pholiota cubensis* Earle, Inf. An. Estac. Centr.
Agron. Cuba 1: 242. 1906.

Pileus 3–12 cm. broad, fleshy, firm, expanded, scattered or gregarious, dark-tan, "tawny" or "cinnamon brown" in herbarium specimens, dry, floccose-scaly on the disk, areolate but not striate on the margin; context yellowish, mild but somewhat unpleasant; lamellae sinuate with an adnate tooth, crowded, 3–7 mm. broad, dark-cinnamon; stipe central, terete, slightly enlarged at the base, floccose above, glabrous below, pale-yellow, solid, firm, 3–6 cm. long, 3–10 mm. thick; spores ovoid or ellipsoid, smooth, $6-7 \times 3-4.5 \mu$; cystidia present, not conspicuous, projecting slightly.

TYPE LOCALITY: Santiago de las Vegas, Cuba.

HABITAT: On the ground under a building; also in open fields.

DISTRIBUTION: Cuba and Grenada.

44. *Pholiota martinicensis* Pat. in Duss, Énum.
Champ. Guad. 54. 1903.

Pileus 8–15 mm. broad, convex to expanded, reddish-brown, darker at the center, with scattered erect reddish squamules; lamellae adnate, brown, unequal; veil forming a median, whitish, membranous, erect, persistent annulus; stipe central, slender, 2–3 cm. long, smooth above, furfureous-squamulose at the base; spores ovoid, smooth, $6 \times 4 \mu$.

TYPE LOCALITY: Base of Mt. Pelée, Martinique.

HABITAT: Scattered or gregarious on dead bark of *Mangifera*, in woods.

DISTRIBUTION: Known only from the type locality.

45. *Pholiota cinchonensis* Murrill, Mycologia 5: 33. 1913.

Pileus 1.5 cm. broad, thin, becoming plane, ochroleucous to ochraceous, dry, granular-tomentose, striate, straight and even on the margin; lamellae adnate, with a decurrent tooth, isabelline, 1–2 mm. broad; veil forming a white, nearly central, sometimes ample annulus; stipe central, terete, equal, paler than the pileus, glabrous or nearly so, sometimes with fibrils on the lower part, attached at the base to a white mat of mycelium, 1.5 cm. long, 1 mm. thick; spores rather broadly ellipsoid, smooth, $7-8 \times 4-5 \mu$; cystidia none.

TYPE LOCALITY: Cinchona, Jamaica.

HABITAT: On a dead stick in woods.

DISTRIBUTION: Known only from the type locality.

46. *Pholiota avellanea* Murrill, Mycologia 5: 32. 1913.

Pileus about 3 mm. broad and 3 mm. thick, nearly plane, solitary, pale-avellaneous, darker at the center, dull, glabrous, smooth, thin and slightly decurved on the margin; lamellae adnate, close, about 2 mm. broad, avellaneous when looked at perpendicularly; veil forming an ample, white, superior, persistent annulus; stipe central, terete, enlarged below, crooked, white at the apex, hygrophanous and longitudinally streaked below, 5 cm. long, 4 mm. thick; spores ellipsoid, truncate at one end, $8.5-10 \times 4.5-5.5 \mu$; cystidia rather numerous, flask-shaped, projecting conspicuously.

TYPE LOCALITY: Morce's Gap, Jamaica.

HABITAT: On the ground.

DISTRIBUTION: Known only from the type locality.

47. *Pholiota Broadwayi* Murrill, Mycologia 5: 32. 1913.

Pileus 1-3 cm. broad, thin, convex to expanded, solitary, nearly white to pale-isabelline, slightly darker at the center, glabrous, moist or slightly viscid, thin, concolorous, and entire on the margin; lamellae adnate or adnexed, crowded, slightly ventricose, 2-3 mm. broad, pale-fulvous; stipe central, terete, equal, concolorous, glabrous, hollow, 4-7 cm. long, 2-3 mm. thick; veil forming a superior, membranous, evanescent annulus; spores ovoid with a truncate base, smooth, $12-14 \times 8-9 \mu$; cystidia present but rare, enlarged at the base, with a tapering projecting tip, hyaline.

TYPE LOCALITY: Grenada, West Indies.

HABITAT: On the ground.

DISTRIBUTION: Known only from the type locality.

48. *Pholiota Musae* (Earle) Murrill, Mycologia 5: 34. 1913.

Pholiotina Musae Earle, Inf. An. Estac. Centr. Agron. Cuba 1: 241. 1906.

Pileus 1-4 cm. broad, convex to expanded, pale-fuscous to tan, hygrophanous, striate on the margin and at length upturned; lamellae adnexed, crowded, becoming ventricose, subconcolorous to darker; veil soon evanescent, sometimes no ring formed; stipe central, equal, glabrous, shining, white, hollow, 4-6 cm. long, 3-6 mm. thick; spores ellipsoid or narrow-ellipsoid, nearly hyaline, smooth, $17-19 \times 7-9 \mu$; cystidia none.

TYPE LOCALITY: Santiago de las Vegas, Cuba.

HABITAT: On dead banana stalks.

DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Pholiota Aegerita Briganti. Harper's plants so determined by Atkinson seem to belong better under *P. aeruginosa* Peck. Hard, if his description is drawn from the actual specimens, may have had the plants. The species is included in this paper on the basis of Kauffman's report.

Pholiota appendiculata Peck, Bull. N. Y. State Mus. 94: 33. 1905. Equals *P. ornella* Peck, which is referable to *Flammula polychroa* Berk.

Pholiota aurea (Schaeff.) Gill. Champ. Fr. 435. 1876. *P. spectabilis* seems to cover all American material that might otherwise be referred to this species.

Pholiota caperata (Pers.) Gill. Champ. Fr. 435. 1876. See *Rozites*.

Pholiota dactyliota (Berk. & Mont.) Sacc. Syll. Fung. 5: 750. 1887. (*Agaricus dactyliotus* Berk. & Mont.; Mont. Syll. Crypt. 115. 1856.) Described from plants collected in Ohio by Sullivant, and said to be similar to *P. squarrosa*.

Pholiota dura (Bolt.) Qué. Champ. Jura Vosg. 91. 1872. (*Agaricus durus* Bolt. Hist. Fung. pl. 67, f. 1. 1788.) A species reported in every list of fleshy fungi issued in America. All collections examined belong as well under *P. vermiflua* Peck which will probably be found to be a synonym of *P. dura*. Europeans are far from an agreement as to the limits of the species and Peck's name may be used for the present.

Pholiota erebia (Fries) Gill. Champ. Fr. 432. 1876. Reported several times from America. All specimens I have seen are referable to *P. aggericola* Peck or *P. ombrophila* Fries. European workers are not in accord as to the microscopic characters of the plant, though probably *P. aggericola* will eventually be retired in favor of *P. erebia*.